



# Open Horizon

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## Project Overview

- Open Horizon is a platform used for managing service software lifecycles of containerized workloads
- The main Open Horizon Components are:
  - OH Agent
  - Edge Node
  - OH Management Hub
  - Agreement Bot (AgBot)
  - Exchange
  - Container Registry
- Kube Armor is a security engine that protects workloads deployed by OH in either containerized or k8s orchestrated mode

## Goals and Milestones

**Goals:** Provide a full understanding of building and testing Open Horizon, running various services, and facilitating the integration of KubeArmor into Open Horizon.

**Milestones:**

- Gain comprehensive knowledge of Open Horizon, including setup, build, and testing.
- Successfully run service examples using Open Horizon to understand its capabilities and work on relevant issues.
- Study KubeArmor's purpose and integration with Open Horizon, collaborating with mentors to clarify doubts.
- Implement, test, and document the integration of KubeArmor with Open Horizon.

## Open Source Outcomes

- Merged 4 pull requests
- Tackled 8 Issues
- Opened 3 Issues
- Collaborated closely with mentors and other contributors.
- Improved project functionality and usability
- Collaborated with other professionals in the industry

## Adhishree's Highlights and Achievements

- First Issue – worked on and opened a PR for adding GitHub actions (CI/CD tool) to an example service (PR merged)
  - Created two workflows to automate the service more
    - makefile.yml checks whether makefile targets are in the makefile before pushing and opening pull requests
    - check-files.yml checks if all the required files are in the repository
- Second Issue - worked on and opened a PR to update service to use policy deployment in order for it to run on multiple architecture. Previously, the agreements were not forming when running on a MacBook with an M1 chip
- Third Issue - Update documentation for a service
  - Opened my first issue because the necessary updates were more than just documentation
  - Updated full README (prerequisites, installation, usage) and added policy deployment files (PR Merged)
- Fourth Issue - opened an issue to update the Cluster Installation documentation to include setting up kubeconfig files
- Wrote [a LinkedIn post](#) summarizing my internship experience

## Sze Yan's Highlights and Achievements

- First Issue - worked on updating the comprehensive README for the Hello-world-python service example
  - Opened a PR, adding detailed installation steps and prerequisites for the service example
- Second Issue - created a new service examples for open horizon - Node UI using python flask
  - Implemented API calls to retrieve and display the current running Open Horizon services on the local machine.
  - Presented the results on the localhost, providing a user-friendly interface for monitoring local services.
- Third Issue - opened and resolved Open Horizon cluster agent timeout issue
  - Identified and tackled a bug related to the Open Horizon cluster agent timeout issue.
  - Communicated with Doug to diagnose the problem, discovering it was due to a mismatch between HTTP and HTTPS on the k3s cluster.
- Fourth Issue – Added instructions for setting up Kubeconfig files on the Cluster installation documentation, opened a PR.
- Posted [a LinkedIn Post](#) about my experience in VSIP

## Combined Achievements

- Started off the internship exploring and understanding Open Horizon and trying out various services
  - Tried out services like HelloWorld which is a HTTP server that responds with a "Hello World" message, service-grafana, service-edgelake
- Attended biweekly working group meetings (Technical Steering Committee, Developer Examples Working Group, Workload Runtime Security) and collaborated with working group members to discuss tasks, work through issues/challenges encountered, review PRs
- Manually installed the Open Horizon agent on both K3s and MicroK8s Kubernetes cluster
- Installed and tested out Kube Armor in order to see how it protects the cluster agent
- Worked on writing a shell script using existing installation techniques in order to automate the Kube Armor installation process
- This script is run right after downloading the agent on the K3s or MicroK8s Edge cluster
- Got a much better understanding of how Open Source Projects work

## Future Work

- Maintain active involvement in the Open Horizon project beyond the internship, contributing to ongoing development and support
- Implement the functionality of KubeArmor's integration with Open Horizon.
- Leverage the knowledge and experience gained to contribute to other open-source projects, fostering innovation and collaboration within the community.

